

DDS 402

Two Input RGB Video Scaler



FEATURES

- **High performance computer-video and component video scaler**
- **Inputs:** RGBHV on female 15-pin HD with buffered local monitor output, RGBHV or HDTV/component video on five female BNCs
- **Outputs:** RGBHV on female 15-pin HD, RGBHV or HDTV/component video on six female BNCs
- **41 selectable output rates from 640x480 to 1400x1050, including HDTV 1080p** — To ensure maximum compatibility, the DDS 402 offers 41 user-selectable output rates, including computer-video at up to 1400x1050 and HDTV at 720p, 1080i, and 1080p.
- **Eight levels of horizontal filtering and eight levels of vertical filtering** — Filtering reduces jitter, improves image stability, and assures that minimal picture detail is dropped during scan conversion.
- **AFL™ - Patented Accu-RATE Frame Lock** — A patented technology exclusive to Extron that solves frame rate conversion issues experienced by video scalers. When video input and output refresh rates differ, there are certain points in time when the two rates cross over each other. The result is a glitch or image freeze on the display. AFL solves this problem by locking the output frame rate to the input frame rate.
- **Aspect ratio conversion** — Ability to horizontally and vertically size any video input to meet a specific aspect ratio.
- **Zoom capability up to 200% for video wall applications**
- **Brightness, contrast, horizontal and vertical shift, and horizontal and vertical centering picture controls**
- **Input freeze control** — Any input of the DDS 402 can be frozen using the freeze button on the front panel. When the freeze button is pressed, it will light red. Once an input has been frozen, the input to the unit can be removed, and the frozen output image will not be lost until another source has been selected.
- **32 user memory presets for centering, sizing, filtering, contrast, and brightness** — Inputs one and two each support 32 auto-recall memory presets, based on the incoming horizontal and vertical frequencies. These presets save sizing, centering, detail, contrast, and brightness information for each source. Automatic recall of presets can save an enormous amount of time and effort in fine-tuning displayed images.
- **Front panel security lockout** — This feature locks out all front panel functions except for input selection; all functions, however, remain active through RS-232 control.
- **RS-232 serial control port** — Using serial commands, the DDS 402 can be controlled and configured via the Extron Windows®-based control program, or integrated into third-party control systems. Extron products use the SIS™ - Simple Instruction Set command protocol, a set of basic ASCII code commands that allow for quick and easy programming.
- **Rack-mountable 1U, full rack width metal enclosure**
- **Internal international power supply** — The 100-240VAC, 50/60 Hz, autoswitchable internal power supply provides worldwide power compatibility.

DESCRIPTION

The Extron **DDS 402** Digital Display Scaler combines a high performance scaler with proprietary technology to scale computer-video and component video signals to one of 41 output rates. To optimize the output image quality, the DDS 402 is equipped with Extron's patented AFL™ - Accu-RATE Frame Lock scaling technology.

For upconverting inputs, the DDS 402 scales the RGB input to match the native resolution of the projector or other display device, producing an undistorted, sharper looking picture. For downconverting inputs, the DDS 402 accepts any computer resolution up to 1600x1200, with horizontal scan rates up to 100 kHz and vertical scan rates up to 120 Hz, and converts it to match the native resolution of a lower resolution display device.

The DDS 402 offers the following output rates: 640x480, 800x600, 832x624, 848x480, 852x480, 1024x768, 1280x768, 1280x1024, 1360x765, 1365x1024, 1400x1050, 576p, 720p, 1080i, and 1080p. This capability is crucial when the application demands that computer-video from high resolution workstations be displayed on lower resolution displays such as video walls, LCD, DLP™, D-ILA®/LCoS, and plasma. Using the DDS 402, video created on SGI or Sun workstations can be viewed on plasma displays. The DDS 402 also features HDTV 720p, 1080i, and 1080p output resolutions for HDTV compatible displays.

The DDS 402 offers a zoom feature that makes the scaler ideal for use in video wall applications. By pressing the zoom button and using the two rotary dials on the front panel, the image can be zoomed in and out up to 200% while keeping the image in its original aspect ratio. This feature lets users create a video wall effect using four displays and four DDS 402s. All four of the DDS 402s can be zoomed to 200% and display one-fourth of the original image on each display.

The rack-mountable DDS 402 has two video inputs for RGBHV, RGBS, RGSB, and component video: one on a female 15-pin HD connector with a buffered local monitor output, and the other on five female BNC connectors. Video output, as RGBHV, RGBS, and HD component video, is available on five BNC connectors or a female 15-pin HD connector. The DDS 402 features eight levels of horizontal and eight levels of vertical user-selectable filters. Horizontal filtering helps prevent detail loss, while vertical filtering reduces flicker.

MODEL	VERSION DESCRIPTION	PART #
DDS 402	RGB Video Scaler	60-426-01
OPTIONAL ACCESSORIES	MODEL DESCRIPTION	PAGE
VGA M-M MD/10	Male to Male VGA Molded Connector Cables	page 694
		PART #
		26-238-07

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SPECIFICATIONS

VIDEO INPUT

Number / Signal type	1 RGBHV, RGBS, RGsB
	1 RGBHV, RGBS, RGsB, component video
Connectors	(1) 15-pin HD female
	5 BNC female
Nominal level	1 Vp-p for Y of component video
	0.7 Vp-p for RGB for R-Y and B-Y of component video
Minimum / Maximum levels	Analog: 0.0 Vp-p to 2.0 Vp-p with no offset
Impedance	75 ohms
Horizontal frequency	
RGB	Autoscan 24 kHz to 100 kHz
Video	PAL/NTSC 3.38/NTSC 4.43/SECAM
Vertical frequency	Autoscan 50 Hz to 120 Hz
Resolution range	Autoscan 560 x 384 to 1600 x 1200

VIDEO PROCESSING

Digital sampling	24 bit, 8 bits per color; 140 MHz standard, 200 MHz zoom
Colors	16.8 million
Horizontal filtering	4 levels
Vertical filtering	8 levels

VIDEO OUTPUT

Number / Signal type	2 identical outputs:
	1 RGBHV, HD component (Y, R-Y, B-Y) (on 15-pin HD)
	1 RGBHV, RGBS, HD component (Y, R-Y, B-Y) (on BNCs)
Connectors	(1) 15-pin HD female
	6 BNC female
	(1) 15-pin HD female (buffered local monitor output)
Nominal level	1 Vp-p for Y of component video
	0.7 Vp-p for RGB and for R-Y and B-Y of component video
Minimum / Maximum levels	0.0 V to 1.0 Vp-p
Impedance	75 ohms
Scaled resolution	640x480 ^{1,3,4,5} , 800x600 ^{1,3,4,5} , 832x624 ^{3,4,5} , 848x480 ^{3,5} , 852x480 ^{3,5} , 1024x768 ^{1,3,4,5,6} , 1280x768 ^{2,5} , 1280x1024 ^{1,3,5} , 1360x765 ^{3,5} , 1365x1024 ^{3,5} , 1400x1050 ^{1,3,5} , 576p ^{1,5} , 720p ^{3,5} , 1080p ^{3,5} , 1080i ^{1,3,5}
	¹ = at 50 Hz, ² = at 56 Hz, ³ = at 60 Hz, ⁴ = at 75 Hz, ⁵ = locked to the current input's vertical refresh rate (up to 60 Hz), ⁶ = at 85 Hz
DC offset	±50 mV (max) with input at 0 offset (for R, G, B, and for Y of component video) 350 ± 25 mV (max) with input at 0 offset (for R-Y, B-Y of component video)

SYNC

Input type	RGBHV, RGBS, RGsB
Output type	RGBHV, RGBS
Standards	NTSC 3.58, NTSC 4.43, PAL, SECAM
Input level	0.0 V to 5.0 Vp-p
Output level	0.0 V to 5.0 Vp-p
Input impedance	75 ohms
Output impedance	510 ohms
Max input voltage	5.0 Vp-p
Polarity	RGBS: negative RGBHV: user-selectable

CONTROL / REMOTE – VIDEO SCALER / SCAN CONVERTER

Serial control port	RS-232, 9-pin female D connector
Baud rate and protocol	9600 baud, 8 data bits, 1 stop bit, no parity
Serial control pin configurations	2 = TX, 3 = RX, 5 = GND
Program control	Extron's control/configuration program for Windows® Extron's Simple Instruction Set (SIS™)

GENERAL

Power	100 VAC to 240 VAC, 50/60 Hz, 30 watts, internal, autoswitchable
Temperature / Humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Rack mount	Yes
Enclosure type	Metal
Enclosure dimensions	1.75" H x 17.5" W x 12" D (1U high, full rack wide) 4.4 cm H x 44.4 cm W x 30.5 cm D
Product weight	6.3 lbs (2.9 kg)
Shipping weight	11 lbs (5 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Listings	UL, CUL
Compliances	CE, FCC Class A
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE: All nominal levels are at ±10%. Specifications are subject to change without notice.

